

Complete Summary

GUIDELINE TITLE

Intravenous immunoglobulin preparations.

BIBLIOGRAPHIC SOURCE(S)

University HealthSystem Consortium (UHC), Technology Assessment Program of the Clinical Practice Advancement Center. Technology assessment: intravenous immunoglobulin preparations. Oak Brook (IL): UHC; 1999 Mar. 216 p. [534 references]

COMPLETE SUMMARY CONTENT

SCOPE
 METHODOLOGY - including Rating Scheme and Cost Analysis
 RECOMMENDATIONS
 EVIDENCE SUPPORTING THE RECOMMENDATIONS
 BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS
 QUALIFYING STATEMENTS
 IMPLEMENTATION OF THE GUIDELINE
 INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT
 CATEGORIES
 IDENTIFYING INFORMATION AND AVAILABILITY

SCOPE

DISEASE/CONDITION(S)

Hematology:

- Aplastic anemia
- Pure red cell aplasia
- Diamond-Blackfin anemia
- Autoimmune hemolytic anemia
- Hemolytic disease of the newborn
- Acquired factor VIII inhibitors
- Acquired von Willebrand's disease
- Immune-mediated neutropenia
- Refractoriness to platelet transfusion
- Neonatal alloimmune/autoimmune thrombocytopenia
- Posttransfusion purpura
- Thrombotic thrombocytopenia purpura (TTP)/Hemolytic uremic syndrome (HUS)

Infectious Diseases

Those conditions in which acquiring an infectious disease could be deleterious:

- High-risk neonates (low birth weight infants, < 1,500 g)
- Solid organ transplantation
- Surgery/trauma/burns
- HIV infection

Neurology:

- Epilepsy, pediatric intractable
- Guillain-Barré syndrome
- Chronic inflammatory demyelinating polyneuropathy (CIDP)
- Myasthenia gravis
- Lambert-Eaton myasthenic syndrome (LEMS)
- Multifocal motor neuropathy
- Multiple sclerosis

Obstetrics:

- Recurrent pregnancy loss

Pulmonology:

- Asthma and chronic chest symptoms

Rheumatology:

- Rheumatoid arthritis (RA, adult and juvenile)
- Systemic lupus erythematosus (SLE)
- Systemic vasculitides
- Dermatomyositis, polymyositis
- Inclusion-body myositis

Miscellaneous:

- Adrenoleukodystrophy
- Amyotrophic lateral sclerosis
- Behcet's syndrome
- Cardiomyopathy, acute
- Chronic fatigue syndrome
- Congenital heart block
- Cystic fibrosis
- Dermatitis, autoimmune blistering
- Diabetes mellitus
- Dysautonomia, acute idiopathic
- Encephalomyelitis, acute disseminated
- Endotoxemia
- Hemolytic transfusion reaction
- Hemophagocytic syndrome
- Leukemia, acute lymphoblastic
- Lower motor neuron syndrome

- Multiple myeloma
- Myelopathy, human T-cell lymphotropic virus-1 (HTLV-1) associated
- Nephritic syndrome
- Nephropathy, membranous
- Nephrotic syndrome
- Ophthalmopathy, euthyroid
- Opsoclonus-myoclonus
- Otitis media, recurrent
- Paraneoplastic cerebellar degeneration
- Paraproteinemic neuropathy
- Parvovirus infection (general)
- Polyneuropathy organomegaly endocrinopathy mprotein, skin changes (POEMS)
- Progressive lumbosacral plexopathy
- Radiculoneuritis, Lyme
- Rasmussen's syndrome
- Reiter's syndrome
- Renal failure, acute
- Thrombocytopenia (nonimmune)
- Toxic shock syndrome, streptococcal
- Uveitis
- Vogt-Koyanagi-Harada syndrome

GUIDELINE CATEGORY

Technology Assessment
Treatment

CLINICAL SPECIALTY

Hematology
Infectious Diseases
Neurology
Obstetrics and Gynecology
Pulmonary Medicine
Rheumatology

INTENDED USERS

Hospitals
Pharmacists
Physicians

GUIDELINE OBJECTIVE(S)

- To combine published data and expert clinical input in a comprehensive analysis of off-label intravenous immunoglobulin (IVIG) therapy.
- To provide updated recommendations to University HealthSystem Consortium (UHC) member institutions on the rational and effective use of IVIG products for many off-label indications.

TARGET POPULATION

Adult and pediatric patients suffering from a wide variety of immunologically mediated diseases and syndromes affecting almost every organ system.

INTERVENTIONS AND PRACTICES CONSIDERED

Intravenous immunoglobulin (IVIG) therapy for off-label conditions.

IVIG preparations marketed in the United States:

- Gammagard S/D (Baxter/Hyland)
- Gammar-IV (Armour)
- Gamimune-N (Baxter-Miles)
- Iveegam (Immuno-U.S.)
- Polygam S/D (Baxter/Hyland, American Red Cross)
- Sandoglobulin (Sandoz)
- Venoglobulin I or S (Alpha Therapeutic)

MAJOR OUTCOMES CONSIDERED

- Effectiveness of intravenous immunoglobulin (IVIG) treatment for off-label conditions
- Adverse events, including viral transmission

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The search strategy used in the initial analysis of off-label uses involved first retrieving the citations for all review articles published in the English language and contained in MEDLINE between January 1982 and early 1994. In addition, the bibliographies of review articles were examined to discover any articles that may have been overlooked in the computer-based search. Current Contents on Disk (Institute for Scientific Information) was searched weekly to identify articles published after the cutoff date for the computerized searches. A similar protocol was followed for the update, which had a cutoff date of October 1998.

NUMBER OF SOURCE DOCUMENTS

For the initial project, 365 articles were analyzed; the update included 173 additional publications.

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Type I: obtained from at least one properly designed randomized controlled trial

Type II-1: obtained from well-designed controlled trials without randomization

Type II-2: obtained from well-designed cohort or case-control analytic studies, preferably from more than one center or research group.

Type II-3: obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments could also be regarded as this type of evidence.

Type III: opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees.

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Evidence tables, in the guideline document, were constructed that provide pertinent details on the off-label uses of intravenous immunoglobulin (IVIG) for which a substantial body of evidence is available in the literature. The individual tables cite the original references. In addition, review articles and book chapters oriented to specific conditions are cited within pertinent sections. Information from articles published since the release of the original assessment is italicized where appropriate in the evidence tables.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Not stated

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Not stated

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

- [Table 1](#) summarizes specific recommendations for off-label use of intravenous immunoglobulin (IVIG) products. The published evidence and consensus among the University HealthSystem Consortium (UHC) IVIG Expert Panel support off-label use of IVIG for only a few of the many conditions for which it has been administered. In most situations, IVIG therapy is indicated only if standard approaches have failed, are contraindicated, or have become intolerable.
- The available IVIG products are considered therapeutically interchangeable for all off-label uses. No adequate comparative data that demonstrate clear therapeutic differences exist.
- No IVIG manufacturing process can guarantee freedom from viral contamination in the finished product. Although manufacturers have incorporated organic solvent/detergent treatment steps to inactivate lipid-enveloped viruses during IVIG production, clinicians should be aware of the potential, albeit perhaps increasingly small, risk of viral transmission and should carefully consider the implications before they use one of these products for an off-label indication.
- Significant interproduct pharmaceutical differences should be considered in the context of the patient's clinical and physiologic status when an IVIG is chosen for use. Considering interproduct differences (such as osmolality, pH, salt and sugar content, IVIG concentration, and IgA content) will minimize the risk of significant adverse events.
- Institutions should convene an in-house task force (composed of clinical and administrative representatives with knowledge and experience in using IVIG products) to create and update guidelines for their off-label use. This group should be convened every 2 years to review the guidelines and update them as necessary to reflect current medical practice. In-service educational programs for health care providers are essential to ensure the most efficient use of IVIG. Because UHC data estimated that off-label uses account for as much as half of all IVIG consumption, institutions that can create and implement appropriate guidelines for using these products may achieve significant savings.

Table 1. UHC Recommendations for the Off-Label Use of Standard Intravenous Immunoglobulin Preparations (modified by NGC)

Clinical Category: Hematology

Specific Clinical Condition or Situation	Recommendations	Evidence Grade*
Aplastic anemia	The use of IVIG is not	III

	recommended.	
Pure red cell aplasia	The routine use of IVIG is not recommended. IVIG may be used in patients with documented chronic parvovirus B19 infection and severe anemia.	II-3/III
Diamond-Blackfan anemia	The use of IVIG is not recommended.	III
Autoimmune hemolytic anemia	The routine use of IVIG is not recommended. IVIG may have a role in patients with warm-type autoimmune hemolytic anemia that does not respond to corticosteroids or splenectomy, or those for whom the latter two treatments are contraindicated.	II-3/III
Hemolytic disease of the newborn	The routine use of IVIG is not recommended. IVIG is recommended for neonates with severe hemolytic disease of the newborn when other interventions have been unsuccessful, become intolerable, or are contraindicated. Prenatal IVIG may be considered to prevent debilitating sequelae when other interventions have been unsuccessful, have become intolerable, or are contraindicated.	I/II-3/III
Acquired factor VIII inhibitors	The use of IVIG is not recommended.	II-3/III
Acquired von Willebrand's disease	The use of IVIG is not recommended.	III
Immune-mediated neutropenia	The routine use of IVIG is not recommended. IVIG may have a role in patients with immune neutropenia for whom other interventions have been unsuccessful, have become intolerable, or are contraindicated.	II-3/III
Refractoriness to platelet transfusion	The routine use of IVIG is not recommended. IVIG may have a role in patients with severe thrombocytopenia of documented	I/II-3/III

	immune basis for whom other interventions have been unsuccessful, have become intolerable, or are contraindicated.	
Neonatal alloimmune/autoimmune	The routine use of IVIG is not recommended. IVIG is recommended in severely thrombocytopenic, symptomatic neonates who are at high risk of developing intracranial hemorrhage when other interventions have been unsuccessful, have become intolerable, or are contra-indicated. Prenatal IVIG treatment may be used in high-risk women who have a history of neonatal alloimmune thrombocytopenia and fetal-neonatal thrombocytopenia.	I/II-3/III
Posttransfusion purpura	IVIG may be considered as first-line therapy in severely affected patients.	II-3/III
TTP/HUS	The use of IVIG is not recommended.	III

Clinical Category: Infectious Diseases

Clinical Subcategory: Prophylaxis (Infections)

Specific Clinical Condition or Situation	Recommendations	Evidence Grade*
High-risk neonates	The routine use of IVIG is not recommended. IVIG prophylaxis may have a role in low birth weight infants (< 1,500 g) or in a setting with high baseline infection rate or morbidity.	I
Solid organ transplantation	The routine use of IVIG is not recommended. IVIG may be used in CMV-seronegative recipients of CMV-seropositive organs.	I/II-2

Clinical Category: Infectious Diseases

Clinical Subcategory: Treatment (Mortality)

Specific Clinical Condition or Situation	Recommendations	Evidence Grade*
Surgery/trauma	The use of IVIG is not recommended.	I
High-risk neonates	The use of IVIG is not recommended.	III
Adults in surgery/trauma, burns	The use of IVIG is not recommended.	III
HIV infection	The use of IVIG is not recommended.	III

Clinical Category: Neurology

Specific Clinical Condition or Situation	Recommendations	Evidence Grade*
Epilepsy, pediatric intractable	The routine use of IVIG is not recommended. IVIG may have a role in certain syndromes (e.g., West, Lennox-Gastaut) as a last resort, especially in cases that may be candidates for surgical resection.	I/II-1/II-3/III
Guillain-Barré syndrome	IVIG is recommended as an equivalent alternative to plasma exchange in children and adults.	I/II-3/III
CIDP	IVIG is recommended as an equivalent alternative to plasma exchange in children and adults.	I/II-3
Myasthenia gravis	The routine use of IVIG is not recommended. IVIG may be considered in patients with severe myasthenia gravis for whom other treatments have been unsuccessful, have become intolerable, or are contraindicated.	II-3
Lambert-Eaton syndrome	The routine use of IVIG is not recommended. IVIG may be considered in patients with severe Lambert-Eaton syndrome for whom other interventions have been unsuccessful, have become	I/II-3/III

	intolerable, or are contraindicated.	
Multifocal motor neuropathy	The routine use of IVIG is not recommended. IVIG may be considered in patients who have progressive, symptomatic multifocal motor neuropathy that has been diagnosed on the basis of electrophysiologic findings that rule out other possible conditions that may not respond to this treatment.	I/II-3/III
Multiple sclerosis	The routine use of IVIG is not recommended. IVIG may be considered in patients with moderate to severe manifestations of relapsing-remitting multiple sclerosis for whom other interventions have been unsuccessful, have become intolerable, or are contraindicated.	I/II-1/II-3

Clinical Category: Obstetrics

Specific Clinical Condition or Situation	Recommendations	Evidence Grade*
Recurrent pregnancy loss	The use of IVIG is not recommended.	I/II-3/III

Clinical Category: Pulmonology

Specific Clinical Condition or Situation	Recommendations	Evidence Grade*
Asthma and chronic chest symptoms	The use of IVIG is not recommended.	II-1/II-3/III

Clinical Category: Rheumatology

Specific Clinical Condition or Situation	Recommendations	Evidence Grade*
Rheumatoid arthritis (adult and juvenile)	The use of IVIG is not recommended.	I/II-3/III

Systemic lupus erythematosus	The routine use of IVIG is not recommended. IVIG may be used in patients with severe active systemic lupus erythematosus for whom other interventions have been unsuccessful, have become intolerable, or are contraindicated.	II-3/III II-3/III
Systemic vasculitides	The routine use of IVIG is not recommended. IVIG may be used in patients with severe active illness, particularly ANCA-positive vasculitis or other systemic vasculitic disorders, for whom other interventions have been unsuccessful, have become intolerable, or are contraindicated.	
Dermatomyositis, polymyositis	The routine use of IVIG is not recommended. IVIG may be used in patients with severe active illness for whom other interventions have been unsuccessful, have become intolerable, or are contraindicated.	I/II-3/III
Inclusion-body myositis	The use of IVIG is not recommended.	I/II-3/III

Clinical Category: Miscellaneous

Specific Clinical Condition or Situation	Recommendations	Evidence Grade*
Adrenoleukodystrophy	The use of IVIG is not recommended.	III
Amyotrophic lateral sclerosis	The use of IVIG is not recommended.	II-3
Behçet's syndrome	The use of IVIG is not recommended.	III
Cardiomyopathy, acute	The use of IVIG is not recommended.	II-3
Chronic fatigue syndrome	The use of IVIG is not recommended.	III
Congenital heart block	The use of IVIG is not	I

	recommended.	
Cystic fibrosis	The use of IVIG is not recommended.	I
Dermatosis, autoimmune blistering	The use of IVIG is not recommended.	II-3/III
Diabetes mellitus	The use of IVIG is not recommended.	I/II-2
Dysautonomia, acute idiopathic	The use of IVIG is not recommended.	III
Encephalomyelitis, acute disseminated	The use of IVIG is not recommended.	III
Endotoxemia	The use of IVIG is not recommended.	II-2
Hemolytic transfusion reaction	The use of IVIG is not recommended.	III
Hemophagocytic syndrome	The use of IVIG is not recommended.	III
Leukemia, acute lymphoblastic	The use of IVIG is not recommended.	I
Lower motor neuron syndrome	The use of IVIG is not recommended.	I/II-3
Multiple myeloma	The use of IVIG is not recommended, except for those with stable disease.	I
Multiple sclerosis	The use of IVIG is not recommended.	II-2
Myelopathy, HTLV-I associated	The use of IVIG is not recommended.	II-3
Nephritic syndrome	The use of IVIG is not recommended.	III
Nephropathy, membranous	The use of IVIG is not recommended.	II-3
Nephrotic syndrome	The use of IVIG is not recommended.	I

Ophthalmopathy, euthyroid	The use of IVIG is not recommended.	I/II-1/II-3/III
Opsoclonus-myoclonus	The use of IVIG is not recommended.	III
Oral use	The use of IVIG is not recommended.	III
Otitis media, recurrent	The use of IVIG is not recommended.	II-2/II-3
Paraneoplastic cerebellar degeneration	The use of IVIG is not recommended.	II-3/III
Paraproteinemic neuropathy	The use of IVIG is not recommended.	III
Parvovirus infection (general)	The use of IVIG is not recommended.	III
POEMS syndrome	The use of IVIG is not recommended.	III
Progressive lumbosacral plexopathy	The use of IVIG is not recommended.	III
Radiculoneuritis, Lyme	The use of IVIG is not recommended.	III
Rasmussen's syndrome	The use of IVIG is not recommended.	III
Reiter's syndrome	The use of IVIG is not recommended.	III
Renal failure, acute	The use of IVIG is not recommended.	I
Thrombocytopenia (nonimmune)	The use of IVIG is not recommended.	III
Toxic shock syndrome, streptococcal	The use of IVIG is not recommended.	III
Uveitis	The use of IVIG is not recommended.	III
Vogt-Koyanagi-Harada syndrome	The use of IVIG is not recommended.	III

Abbreviations: IVIG, intravenous immunoglobulin; CMV, cytomegalovirus; TTP/HUS, thrombotic thrombocytopenic purpura/hemolytic uremic syndrome; CIDP, chronic inflammatory demyelinating polyneuropathy; POEMS, polyneuropathy organomegaly endocrinopathy mprotein, skin changes.

*Evidence grade: This scoring system indicates the quality of the evidence available in the literature. It does not signify in any way the strength of the individual recommendations. Thus, despite the existence of high-quality scientific studies on a particular topic, such use may be not recommended because the results conflict or the data are insufficient to make a determination.

I = Evidence obtained from at least one properly designed randomized controlled trial.

II-1 = Evidence obtained from well-designed, controlled trials without randomization.

II-2 = Evidence obtained from well-designed cohort or case-control analytic studies, preferably from more than one center or research group.

II-3 = Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments could also be regarded as this type of evidence.

III = Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees.

Dosage

The optimal amount of IVIG to be administered, the timing of supplemental doses, the necessity for continuance of therapy, and clinical endpoints for withdrawal of therapy have not been ascertained for the off-label uses noted above.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each specific recommendation for off-label use of intravenous immunoglobulin (see "Major Recommendations").

Information on most off-label uses in the published medical literature is found almost exclusively in case reports and uncontrolled, open series rather than in reports of properly designed, randomized, controlled trials.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Institutional implementation of rational recommendations for off-label use of intravenous immunoglobulin (IVIG) may

- guide effective and appropriate clinical use
- lessen the impact of the IVIG shortage, caused worldwide by the withdrawal from the market of blood products because of safety concerns over transmissible infectious diseases and problems in the manufacturing processes used by some IVIG producers result in significant cost savings

POTENTIAL HARMS

- The risk of transmitting infectious agents accompanies the use of almost any blood-derived pharmaceutical preparation. However, the steps used in preparing the intravenous immunoglobulin (IVIG) products available in the United States practically eliminate the risk of transmitting human immunodeficiency virus (HIV), hepatitis B virus (HBV), and hepatitis C virus (HCV).
- Other adverse effects may occur in 1 percent to 10 percent of IVIG recipients. These reactions are generally mild and may include back or chest pain or sensation of chest heaviness, chills, fever, headache, malaise, myalgia, nausea, vomiting, or renal damage. In one retrospective study, aseptic meningitis with severe headache was reported in about 11 percent of patients who received high-dose IVIG therapy for various autoimmune diseases. Most adverse effects are associated with rapid infusion of IVIG and usually resolve with temporary discontinuation or reduction in infusion rate. Pretreatment with acetaminophen, antihistamines, or dexamethasone may alleviate these adverse effects but is generally not required. Manufacturer-recommended initial and maximum infusion rates are described in the package insert for each preparation. Because these instructions vary among the products, clinicians should become familiar with the individual formulations in their institutions. Adverse reactions to IVIG can occur on initial or subsequent infusions.
- Anaphylactic reactions may occur.

Subgroups Most Likely to be Harmed:

- Aseptic meningitis with severe headache associated with intravenous immunoglobulin (IVIG) infusion was more frequent in patients with a history of migraine headache and occurred regardless of the product type or infusion rate.
- Patients with selective IgA deficiency or a prior anaphylactic episode after IVIG infusion represent the only relevant contraindications to IVIG use. Patients with selective IgA deficiency or IgE-type antibodies to IgA are at risk for a true anaphylactic reaction to IgA-containing IVIG products.
- Patients with renal dysfunction, diabetes, congestive heart failure and neonatal patients are most likely to experience significant adverse events associated with pharmaceutical differences among IVIG products.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- The guideline document was prepared with the understanding that neither the publisher nor the contributors are engaged in the rendering of legal or financial advice. None of the material is provided to establish legal standards; clinical, legal, and financial comments are for general guidance only. Mention of specific products or services within the document does not constitute an endorsement.
- Because medical technology is not static regular evaluation of the guidelines to incorporate new information on intravenous immunoglobulin (IVIG) use is necessary to remain abreast of issues and therapeutic advances in the use of this potentially valuable, expensive technology.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness

IOM DOMAIN

Effectiveness
Safety

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

University HealthSystem Consortium (UHC), Technology Assessment Program of the Clinical Practice Advancement Center. Technology assessment: intravenous immunoglobulin preparations. Oak Brook (IL): UHC; 1999 Mar. 216 p. [534 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

1999 Mar

GUIDELINE DEVELOPER(S)

University HealthSystem Consortium - Private Nonprofit Organization

SOURCE(S) OF FUNDING

University HealthSystem Consortium (UHC)

GUIDELINE COMMITTEE

Technology Assessment Program of the Clinical Practice Advancement Center

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Author: Thomas A. Ratko, PhD

Expert Panelists: W. Christopher Ehmann, MD; Garrett E. Foulke, MD; Laurence B. Givner, MD; Bashar Kahaleh, MD; Ronald A. Sacher, MD; Frederick J. Samaha, MD; John R. Wingard, MD; David E. Yocum, MD.

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

An update is not in progress at this time.

GUIDELINE AVAILABILITY

Electronic copies: Not available at this time.

Print copies: Available from the University HealthSystem Consortium (UHC), 2001 Spring Rd., Suite 700, Oak Brook, IL 60523. Order information is available at the [UHC Web site](#).

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on September 20, 1999. The information was verified by the guideline developer as of December 1, 1999.

COPYRIGHT STATEMENT

This NGC summary is based on the original guideline, which is subject to the guideline developer's copyright restrictions. Summaries of UHC guidelines may be downloaded from the NGC Web site and/or transferred to an electronic storage and retrieval system solely for the personal use of the individual downloading and transferring the material. Permission for all other uses must be obtained from UHC by contacting Karl Matuszewski, Director, Technology Assessment Program, (630) 954-1709.

© 1998-2004 National Guideline Clearinghouse

Date Modified: 11/8/2004

